State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-68

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 of the Health and Safety Code; and,

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following Caterpillar, Inc. 1998 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Industrial Equipment

Fuel Type: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
WCPXL27.0MRJ	27.0	(1649)	Turbocharger Smoke Puff Limiter Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hp)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

	Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
Engine Family	THC	CO	NOx	PM	Accel	Lug	Peak
WCPXL27.0MRJ	0.1	1.6	6.7	0.3	17	6	29

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 9th day of December 1997.

R. B. Summerfield, Chief
Mobile Source Operations Division

9/24/97

EO: U-R-1-68

LARGE ENGINE MODEL SUMMARY

Manufacturer: CATERPILLAR INC. Process Code: New Submission

EPA Engine Family: WCPXL27.0MRJ Manufacturer Family Name: NA

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
Note: Peak Hp	and Peak Torque	fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change.	
1 - Cert Engine	3412	700 @ 2100	214	303.0	2562 @ 1400	260	244.6	EM, DI, TC, SPL,
2	3412	700 @ 2100	200	282.0	1612 @ 1400	237	223.4	EM, DI, TC, SPL,
3	3412	650 @ 2100	182	257.7	2115 @ 1400	212	200.0	EM, DI, TC, SPL,
4	3412	700 @ 2100	200	282.0	1612 @ 1400	237	223.4	EM, DI, TC, SPL,
5	3412	650 @ 2100	182	257.7	2115 @ 1400	212	200.0	EM, DI, TC, SPL,
6	3412	600 @ 2100	167	235.9	1932 @ 1400	194	182.9	EM, DI, TC, SPL,
7	3412	575 @ 2100	159	225.1	1841 @ 1400	185	174.3	EM, DI, TC, SPL,
8	3412	650 @ 1800	199	240.6	2216 @ 1350	227	206.0	EM, DI, TC, SPL,
9	3412	625 @ 1800	191	231.2	2098 @ 1350	215	195.0	EM, DI, TC, SPL,
10	3412	600 @ 1800	183	222.0	1994 @ 1350	204	185.5	EM, DI, TC, SPL,
11	3412	575 @ 1800	174	210.9	1892 @ 1350	194	175.9	EM, DI, TC, SPL,
12	3412	600 @ 2000	175	235.9	1995 @ 1400	204	192.3	EM, DI, TC, SPL,
13	3412	560 @ 1800	170	205.3	1830 @ 1350	187	170.1	EM, DI, TC, SPL,
14	3412	515 @ 1800	156	188.8	1658 @ 1350	170	154.1	EM, DI, TC, SPL, CAC